Complete Summary

GUIDELINE TITLE

Prevention and management of pain in the neonate: an update.

BIBLIOGRAPHIC SOURCE(S)

American Academy of Pediatrics Committee on Fetus and Newborn, American Academy of Pediatrics Section on Surgery, Canadian Paediatric Society Fetus and Newborn Committee, Batton DG, Barrington KJ, Wallman C. Prevention and management of pain in the neonate: an update. Pediatrics 2006 Nov;118(5):2231-41. [136 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: American Academy of Pediatrics. Prevention and management of pain and stress in the neonate. American Academy of Pediatrics. Committee on Fetus and Newborn. Committee on Drugs. Section on Anesthesiology. Section on Surgery. Canadian Paediatric Society. Fetus and Newborn Committee. Pediatrics 2000 Feb;105(2):454-61.

All clinical reports and policy statements from the American Academy of Pediatrics automatically expire 5 years after publication unless reaffirmed, revised, or retired at or before that time.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Acute pain

GUIDELINE CATEGORY

Management
Prevention

CLINICAL SPECIALTY

Pediatrics

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Health Care Providers
Hospitals
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To emphasize that despite increased awareness of the importance of pain prevention, neonates in the neonatal intensive care unit (NICU) continue to be exposed to numerous painful minor procedures daily as part of their routine care
- To present objective means of assessing neonatal pain by health care professionals
- To describe effective strategies to prevent and treat pain associated with routine minor procedures
- To review appropriate methods to prevent and treat pain associated with surgery and other major procedures

TARGET POPULATION

Neonates (preterm to 1 month of age)

INTERVENTIONS AND PRACTICES CONSIDERED

1. Assessment of pain and stress using multidimensional tools
2. Care protocols that minimize painful disruptions
3. Combination of oral sucrose/glucose and other nonpharmacologic measures, including nonnutritive sucking, kangaroo care, facilitated tuck, swaddling, developmental care, for minor routine procedures
4. Topical anesthetics for venipuncture, lumbar puncture, and intravenous catheter insertion
5. Coordinated strategy for pain management in surgery, including sufficient anesthesia, routine assessment of pain, opioids as the basis for postoperative analgesia after major surgery (in the absence of regional anesthesia), and acetaminophen as an adjunct to opioids or regional anesthesia

6. Analgesia for chest-drain insertion including general nonpharmacologic measures, slow infiltration of the skin site with a local anesthetic before incision, systemic analgesia (e.g., fentanyl)
7. Analgesia for chest-drain removal including general nonpharmacologic measures and short-acting, rapid-onset systemic analgesics
8. Local anesthetic eye drops and oral sucrose for retinal examinations
9. Opiate-based pain relief for retinal surgery

Note: The following medications are considered but not recommended: routine use of continuous infusions of morphine, fentanyl, or midazolam in chronically ventilated preterm neonates; non-steroidal anti-inflammatory agents.

MAJOR OUTCOMES CONSIDERED

- Pain as measured by assessment tools
- Physiologic and behavioral indicators of pain
- Adverse effects of pharmacological interventions

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Assessment of Pain and Stress in the Neonate

1. Caregivers should be trained to assess neonates for pain using multidimensional tools. Refer to Table 1: Pain Assessment Tools in the original guideline document for description of most commonly used assessment tools, physiologic and behavioral indicators of pain for each tool, and other information.
2. Neonates should be assessed for pain routinely and before and after procedures.
3. The chosen pain scales should help guide caregivers in the provision of effective pain relief.

Reducing Pain from Bedside Care Procedures

1. Care protocols for neonates should incorporate a principle of minimizing the number of painful disruptions in care as much as possible.
2. Use of a combination of oral sucrose/glucose and other nonpharmacologic pain-reduction methods (nonnutritive sucking, kangaroo care, facilitated tuck, swaddling, developmental care) should be used for minor routine procedures.
3. Topical anesthetics can be used to reduce pain associated with venipuncture, lumbar puncture, and intravenous catheter insertion when time permits but are ineffective for heel-stick blood draws, and repeated use of topical anesthetics should be limited.
4. The routine use of continuous infusions of morphine, fentanyl, or midazolam in chronically ventilated preterm neonates is not recommended because of

concern about short-term adverse effects and lack of long-term outcome data.

Reducing Pain from Surgery

1. Any health care facility providing surgery for neonates should have an established protocol for pain management. Such a protocol requires a coordinated, multidimensional strategy and should be a priority in perioperative management.
2. Sufficient anesthesia should be provided to prevent intraoperative pain and stress responses to decrease postoperative analgesic requirements.
3. Pain should be routinely assessed by using a scale designed for postoperative or prolonged pain in neonates.
4. Opioids should be the basis for postoperative analgesia after major surgery in the absence of regional anesthesia.
5. Postoperative analgesia should be used as long as pain-assessment scales document that it is required.
6. Acetaminophen can be used after surgery as an adjunct to regional anesthetics or opioids, but there are inadequate data on pharmacokinetics at gestational ages less than 28 weeks to permit calculation of appropriate dosages.

Reducing Pain from Other Major Procedures

1. Analgesia for chest-drain insertion comprises all of the following:
    a. General nonpharmacologic measures
    b. Slow infiltration of the skin site with a local anesthetic before incision unless there is life-threatening instability (if there was inadequate time to infiltrate before insertion of the chest tube, local skin infiltration after achieving stability may reduce later pain responses and later analgesic requirements)
    c. Systemic analgesia with a rapidly acting opiate such as fentanyl

2. Analgesia for chest-drain removal comprises the following:
    a. General nonpharmacologic measures
    b. Short-acting, rapid-onset systemic analgesic

3. Although there are insufficient data to make a specific recommendation, retinal examinations are painful, and pain-relief measures should be used. A reasonable approach would be to administer local anesthetic eye drops and oral sucrose.
4. Retinal surgery should be considered major surgery, and effective opiate-based pain relief should be provided.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence supporting each recommendation is not specifically stated.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Prevention, reduction, or elimination of pain

POTENTIAL HARMS

- There is a risk of methemoglobinemia after use of topical lidocaine-prilocaine cream in certain situations.
- Because of the physiologic and metabolic immaturity of the neonate, doses of medications that are effective for the reduction of pain may be close to the doses that cause toxicity.
- Rectal acetaminophen should be used cautiously because of erratic absorption.

QUALIFYING STATEMENTS

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In the original statement, stress and chronic pain were briefly discussed in addition to acute pain. However, neither chronic pain nor stress has been specifically defined for the neonate, and only an intuitive understanding of these concepts is possible. Therefore, this updated statement deals primarily with acute pain prevention.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness
Staying Healthy

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2000 Feb (revised 2006 Nov)

GUIDELINE DEVELOPER(S)

American Academy of Pediatrics - Medical Specialty Society
Canadian Paediatric Society - Medical Specialty Society

SOURCE(S) OF FUNDING

American Academy of Pediatrics

GUIDELINE COMMITTEE

Committee on Fetus and Newborn
Section on Surgery

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

Electronic copies: Available from the American Academy of Pediatrics (AAP) Policy Web site.

Print copies: Available from the American Academy of Pediatrics, 141 Northwest Point Blvd., P.O. Box 927, Elk Grove Village, IL 60009-0927.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on November 16, 2000. The information was verified by the guideline developer on January 8, 2001. This summary was updated on May 3, 2005 following the withdrawal of Bextra (valdecoxib) from the market and the release of heightened warnings for Celebrex (celecoxib) and other nonselective nonsteroidal anti-inflammatory drugs (NSAIDs). This summary was updated by ECRI on June 16, 2005, following the U.S. Food and Drug Administration advisory on COX-2 selective and non-selective non-steroidal anti-

inflammatory drugs (NSAIDs). This NGC summary was completed by ECRI on January 10, 2007. The information was verified by the guideline developer on January 23, 2007.

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DISCLAIMER

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Date Modified: 9/29/2008


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